Data Server Subsystem
Earth Science Data Types

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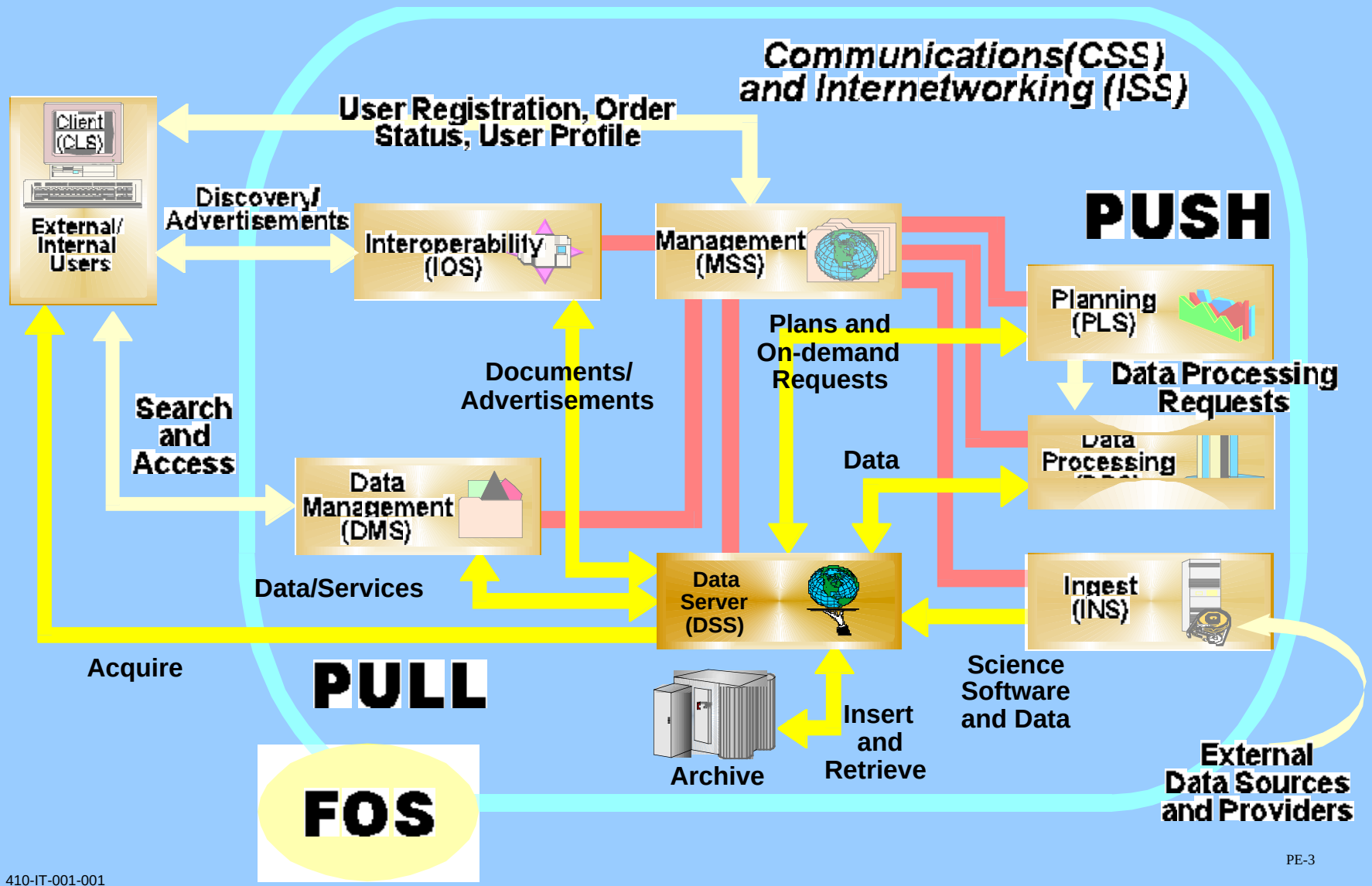
Earth Science Data Types
Data Server Subsystem

Presentation Goals

- Describe the data the ECS was designed to process.
- Examine ESDT role in the DSS.
- Describe data processing within DSS.

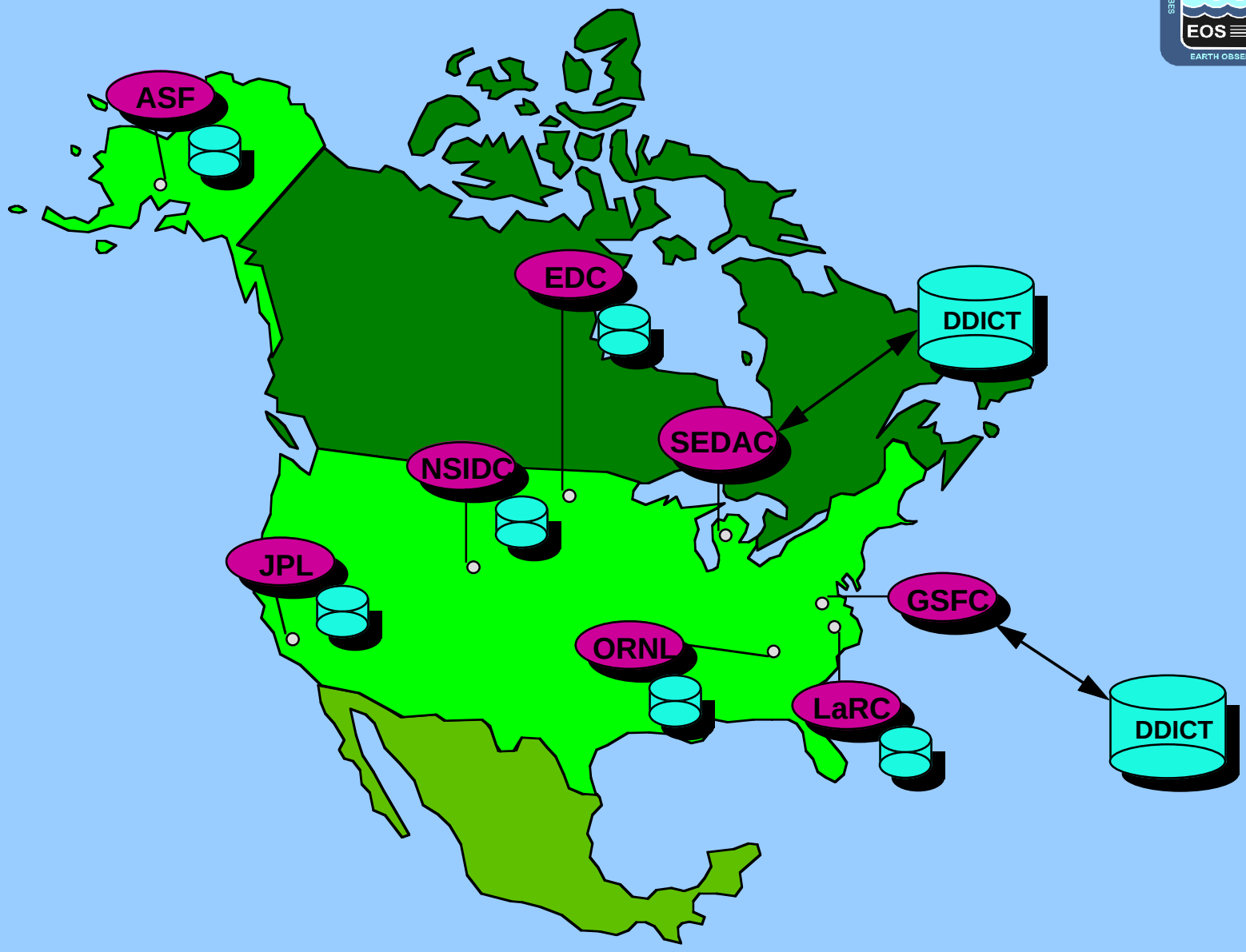
ECS Context


Communications(CSS) and Internetworking (ISS)
User Registration, Order Status, User Profile
Client (CLS)
External/ Internal Users
Discovery/ Advertisements
Interoperability (IOS)
Management (MSS)
PUSH
Planning (PLS)
Plans and On-demand Requests
Data Processing Requests
Data Processing
Documents/ Advertisements
Search and Access
Data Management (DMS)
Data
Data/Services
Data Server (DSS)
Ingest (INS)
Acquire
PULL
Science Software and Data
Insert and Retrieve
Archive
FOS
External Data Sources and Providers

Data History

- Early satellite data
- Introduction of Metadata
- Redefinition of ‘data’
- By mid 1999, 100’s of gigabytes of satellite data are expected.
- Data processing and product generation will require archives to store terabytes of data daily.

ECS Data Centers



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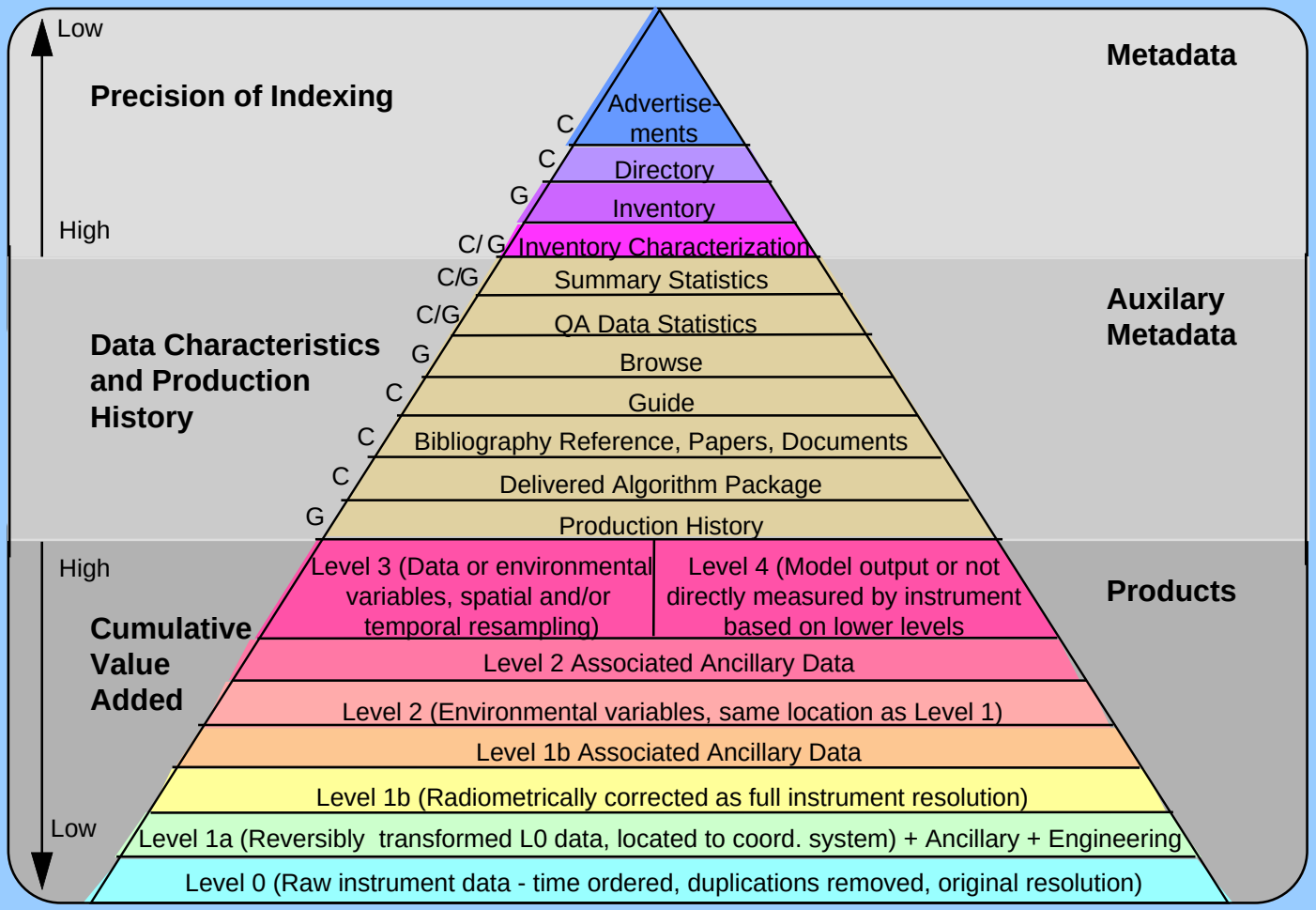
EOSDIS Data Model

Data Model is a critical part of the overall design

Key Features…

- Data Collections
- Data Pyramid
- ESDTs
- CSDTs



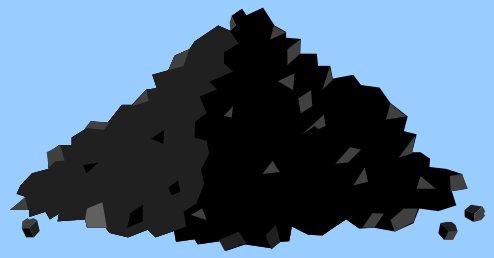
ECS Collections
An Organization Strategy

Data Originator

Discipline, Topic(s), Term(s), Variable(s)

Validation, QA, Review Documentation

Collection



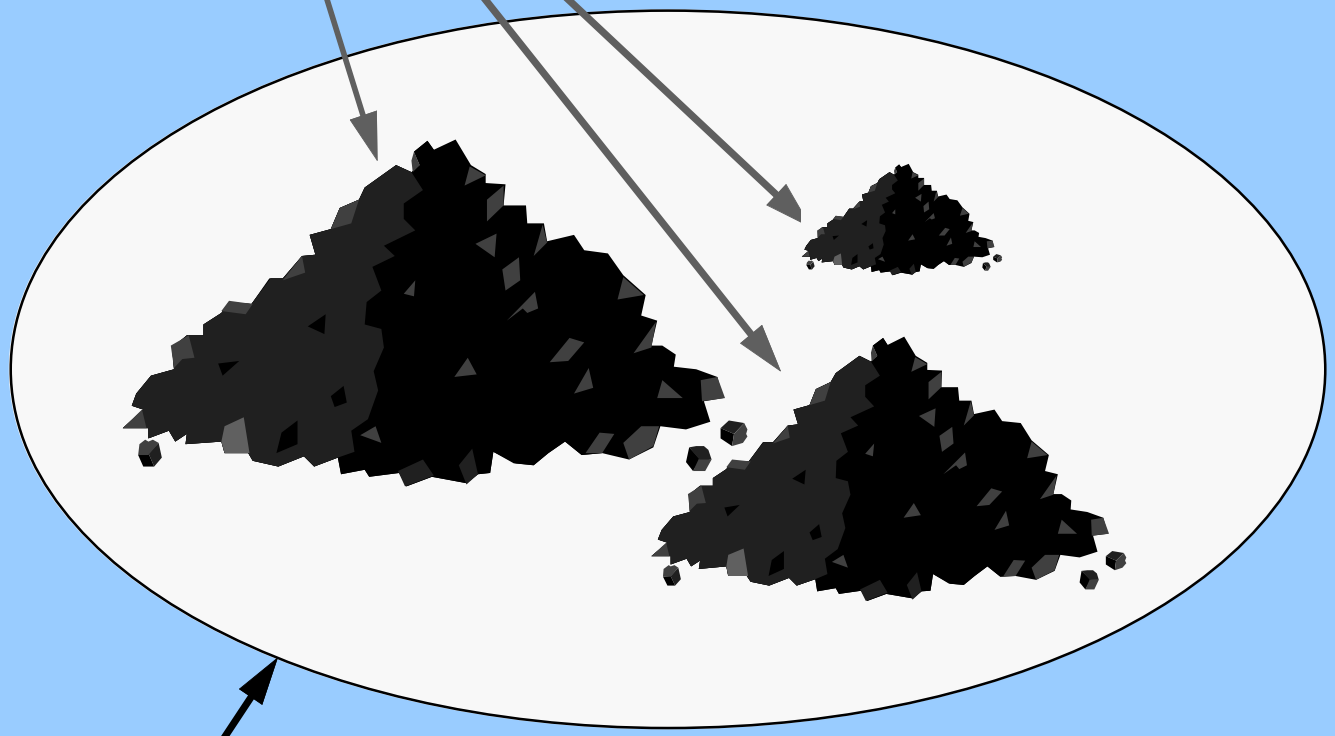
Spatial Locality

Temporal Locality

Collections are logical groupings of granules; designated by the data provider.

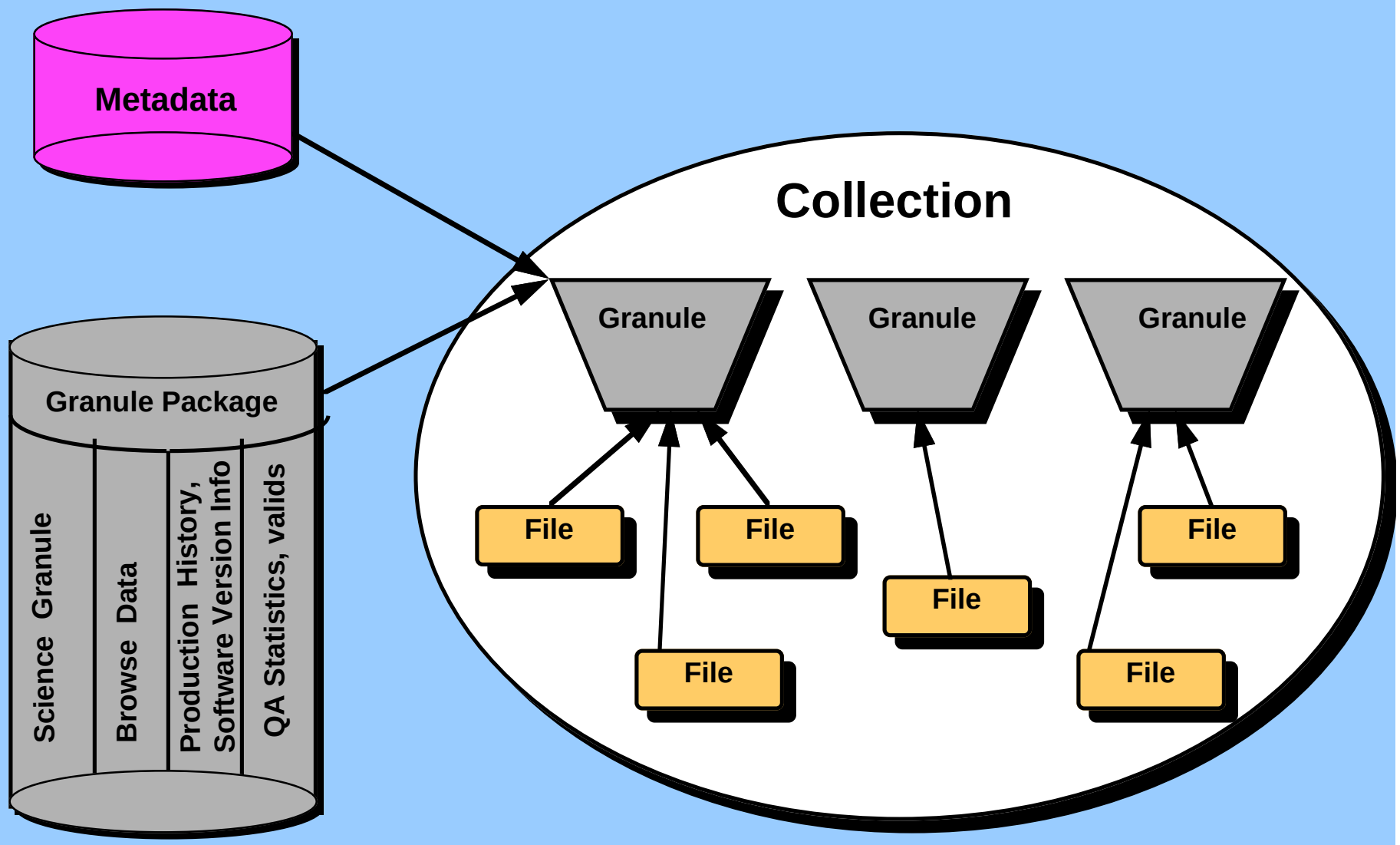
Collections of Collections

Single-Type-Collections **(granules vary in space and/or time)**



Multiple-Type-Collections **are logical groupings of collections and/or granules; used for complex event products**

Information Layers



Earth Science Data Types

- Representation of different types of data products from the Earth Scientist's perspective.
- Define to the ECS:
  - Collection level metadata attributes and values
  - Granule metadata attributes and attribute valid values
  - Data services appropriate to the ESDT

ESDT Components

- Descriptor file
  - Collection level metadata attributes and values
  - Granule metadata attributes
  - Granule metadata attributes valid values
  - Subscribable events
  - Services
- Dynamic Link Library (DLL)
  - Specifies the entry points for services

Object Description Language (ODL) Metadata Configuration File

```
GROUP = INVENTORYMETADATA
  GROUPTYPE = MASTERGROUP
    GROUP = ECSDataGranule

      OBJECT = SizeMBECSDataGranule
         Data_Location  = "DSS"
         NUM_VAL  = 1
         TYPE  = "DOUBLE"
         Mandatory  = "TRUE"
      END_OBJECT = SizeMBECSDataGranule

      OBJECT = ReprocessingPlanned
         Data_Location  = "PGE"
         NUM_VAL  = 1
         TYPE  = "STRING"
         Mandatory  = "TRUE"
      END_OBJECT = ReprocessingPlanned
      OBJECT = ProductionDateTime
         Data_Location  = "TK"
         NUM_VAL  = 1
         TYPE  = "DATETIME"
         Mandatory  = "TRUE"
      END_OBJECT = ProductionDateTime
    END_GROUP=ECSDataGranule

    GROUP = SERVICE
      OBJECT = Acquire
         ADVERTISED = "TRUE"
      END_OBJECT = Acquire
    END_GROUP=SERVICE

END_GROUP = INVENTORYMETADATA
```